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EXAMINER	
WU, JIANYE	

ART UNIT	PAPER NUMBER
2462	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/797,916	BHANDARI ET AL.	
	Examiner	Art Unit	
	JIANYE WU	2462	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 September 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed on 9/08/2009 have been fully considered, they are not persuasive. Applicant has not made any claim amendments.

2. For claim 1, Applicant argues:

a) "Examiner fails to provide a proper reference for teaching: "sorting data packets received during a predetermined time period."" (2nd paragraph from bottom, page 7);

b) "Dapper, however, fails to bridge the substantial gap between Fischer and Applicants' invention of claim 1" (last paragraph from bottom, page 7);

c) "Examiner failed to articulate any motivation" (2nd paragraph, page 8).

In response, Examiner respectfully disagrees:

a) Fisher clearly teaches "sorting data packets during a predetermined time period into groups" with AFAF by sorting received packets according to sequence number into groups identified by a stream identifier in view of FIG. 6 which shows a limit number of Data packets feed into AFAF, as recited by Office Action. Note that AFAF refers to "aggregated fragment acknowledgement frame (AFAF)" ([0006]) which aggregates fragment packets to form a frame which is received in a predetermined time period.

b) Applicant simply makes a statement without any factual support, or points out what gap is not bridged by Dapper. Therefore, Applicant's argument is not persuasive;

c) As stated in Office Action Dapper discloses a well known technique commonly used in the art, as acknowledged by Applicant's disclosure. Therefore, it is obvious for Fisher to use this commonly used technique in the art to achieve specified requirements, which a clear motivation to combine Fisher with Dapper.

3. For claim 21, Applicant argues: "there is no argument put forth by the Office Action that Zehavi supplies that which is missing from Fischer and Dapper to render the independent claims unpatentable" (2nd paragraph, page 9).

In response, Examiner respectfully disagrees: Office action cites "Zehavi teaches using Universal Coordinated Time which is a global timing schedule to synchronize devices and gateways of the network ("base stations or gateways to synchronize to Universal Coordinated Time (UTC)", col. 8, line 32-44)". Zehavi clearly discloses the limitation "global timing schedule for a communication system", which is a commonly used technique in the art. Using commonly used technique is the motivation for the combination. Applicant does not traverse the fact that global timing schedule is a commonly used technique, as Examiner stated and provided written evidence to support it. Therefore, Applicant's argument is not persuasive.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. **Claims 1-20** are rejected under 35 U.S.C. 103(a) as being unpatentable over Fischer (US 20030214930 A1) in view of Dapper et al (US 20020105950 A1, hereinafter Dapper).

For **claim 1**, Fischer discloses a method for combining data packets intended for a common communications device, comprising:

sorting data packets received during a predetermined time period into groups (suggested by "The AFAF includes, among other things, a stream identifier (stream ID), a sequence number (SEQ), and …" of [0067] in view of FIG. 6, where data packets are sorted with the mechanism of AFAF using the **sequence number** with the stream identifier identifies the destination communications device; Note that AFAF refers to "aggregated fragment acknowledgement frame (AFAF)" ([0006]) which aggregates fragment packets to form a frame which is received in a predetermined time period) according to for which communications device of said network the received data packets are intended ("The SEQ contains the sequence number that uniquely identifies a packet in the stream of packets uniquely identified by the combination of the **destination MAC address**, source MAC address and stream ID field", [0068]); respectively time aligning the data packets in each of the groups (suggested by "a sequence number (SEQ)", [0067]).

Fischer does not explicitly disclose orthogonally encode the sorted time aligned data packets within each group.

However, orthogonally encoding the data packets is well known techniques in the art (as admitted by Applicant in Specification, page 8, line 4-32). For example, Dapper teaches using OFDM to encode the packets ("use OFDM (orthogonal frequency division multiplexing)", [0015]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to apply the teaching of Dapper to the method disclosed by Fischer to achieve the required features.

For **claim 12**, Fischer discloses an apparatus for combining data packets intended for a common communications device in a communications network, comprising:

an addressing device for defining a storage location (processor 520 of FIG. 5, which decides the address of a storage location) for said received data packets according to for which communications device of said network the received data packets are intended ("uniquely identified by the combination of the destination MAC address", [0076]);

a memory (Rx FIFO of FIG. 5) for storing said received data packets in different sections according to the storage location defined by said addressing device, wherein the data packets stored within each of said different sections are respectively timed aligned ("the sequence number", [0076] indicates timed aligned data packet); and

Fischer is silent on a combiner for orthogonally combining the respective time aligned data packets in each of said different sections of said memory.

However, orthogonally encoding the data packets is a well known technique in the art (as admitted by Applicant in Specification, page 8, line 4-32). For example, Dapper teaches using OFDM to encode the packets ("use OFDM (orthogonal frequency division multiplexing)", [0015]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to apply the teaching of Dapper to the system disclosed by Fischer to achieve the required features.

As to **claims 2**, Fischer in view of Dapper discloses the method of claim 1, Fischer further discloses said received data packets are sorted using a MAC header of each of said received data packets ("uniquely identified by the combination of the destination MAC address", [0076]).

As to **claims 3** and **13**, Fischer in view of Dapper discloses the method of claim 1 and 12, Fischer further discloses said received data packets are stored in different sections of a memory according to for which communications device of said network the received data packets are intended (received packets are stored in different Rx FIFO of Fig. 5).

As to **claims 4**, Fischer in view of Dapper discloses the method of claim 1, Fischer further discloses comprising sorting for transmission said orthogonally combined data packets in different sections of a memory according to for which communications device said combined data packets are intended (packets to be transmitted are stored in different Tx FIFO of Fig. 5).

As to **claims 5**, Fischer in view of Dapper discloses the method of claim 4, Fischer further discloses said orthogonally combined data packets are stored in different sections of a memory according to which communications device of said network the combined data packets are to be transmitted (packets to be transmitted are stored in different Tx FIFO of Fig. 5).

As to **claims 6**, Fischer in view of Dapper discloses the method of claim 1, Fischer further discloses said orthogonally combined data packets are transmitted to an intended receiver using a single MAC header (MAC Service Data Unit of FIG. 6, which has a single MAC header).

As to **claims 7**, Fischer in view of Dapper discloses the method of claim 1, Fischer further discloses a respective bandwidth required to transmit each group of said orthogonally combined data packets is substantially the same as a bandwidth required to transmit a largest data packet in each of said groups (FIG. 5, where different group Radio Circuitry 510 and 10/100/1G Ethernet in view of Fig. 6 on data transmission; notice that Specification does not provide any details on “substantially the same” on bandwidth requirement, and there are no restrictions on the bandwidth requirements either on said orthogonally combined data packets or on the largest data packet, therefore, the requirements on them are substantially the same).

As to **claims 8**, Fischer in view of Dapper discloses the method of claim 1, Fischer is silent on said predetermined time period is substantially greater than or equal to a total time latency for receiving data packets intended for a common communications device of said network.

However, one skilled in the art would be motivated to select said predetermined time period needs to be substantially greater than or equal to a total time latency for receiving data packets for a common communications device in order to the send them to the device at once.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to select said predetermined time period needs to be substantially greater than or equal to total time latency for receiving data packets for a common communications device for the benefit of efficiency.

As to **claims 9**, Fischer in view of Dapper discloses the method of claim 8, Fischer further discloses data packets in said network are communicated according to a global timing schedule and said time latency is due to differences in the latencies of transmission media of the communications devices of said network (FIG. 5, where different interfaces such as Radio Circuitry 510 or 10/100/1G Ethernet have different latencies).

As to **claims 10**, Fischer in view of Dapper discloses the method of claim 1, Fischer is silent on only data packets having specific MAC headers are orthogonally combined.

However, one skilled in the art would be motivated to apply orthogonal coding to data packets only to data packets having specific MAC headers because of the design choice, such as the data packets having specific MAC header go to a specific device.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to select only data packets having specific MAC headers are orthogonally combined in order to meet desired design specification.

As to **claims 11**, Fischer in view of Dapper discloses the method of claim 1, Fischer further discloses data packets not orthogonally combined are communicated in said network according to conventional Ethernet protocols (10/100/1G Ethernet of FIG. 5).

As to **claims 14**, Fischer in view of Dapper discloses the apparatus of claim 12, Fischer further discloses a bit scaler for defining the number of bits to be combined by said combiner (Bus System Interface of FIG. 5 is a bit scaler that interface that does bits conversion between transmission and receiving, as shown in FIG. 4 of Specification).

As to **claims 15**, Fischer in view of Dapper discloses the apparatus of claim 12, Fischer further discloses said addressing device stores information regarding the MAC header of which data packets are to be orthogonally combined (Receiver 620 stores MAC header as shown in FIG. 6 in view of data packets are to be orthogonally combined by Zehavi in claim 12).

As to **claims 16**, Fischer in view of Dapper discloses the apparatus of claim 12, Fischer further discloses a Receive MAC for receiving data packets and a Transmit MAC for transmitting the respective orthogonally combined data packets (as explained in claim 12) to an intended communications device (as shown in FIG. 6, where both Receive MAC and Transmit MAC are disclosed in view of data packets are to be orthogonally combined by Zehavi in claim 12).

As to **claims 17**, Fischer in view of Dapper discloses the apparatus of claim 12, Fischer further discloses said apparatus is implemented in an interconnect switch of said network (system 100 of Fig. 1, with WLAN 110 having switches or routers).

As to **claims 18**, Fischer in view of Dapper discloses the apparatus of claim 12, Fischer further discloses said apparatus is implemented in at least one of the communications devices of said network (FIG 2, where devices 201, 202, 203 and 221 are all devices according to claim 12 in view of FIG. 2-6).

For **claim 19**, Fischer discloses a packet network where data packets intended for a common communications device are combined (the packet data network shown in FIG. 1), comprising:

a plurality of communications devices (such as devices 101-106 in FIG. 1); and

a switch for interconnecting said communications devices (one of routers/switches in WLAN 210, FIG. 1, such as one of “non-blocking quarter-DS0s” with “cross-connect capability”, [0196]), wherein said interconnection switch includes:

an addressing device for defining a storage location for said received data packets (processor 520 of FIG. 5, which decides the address of a storage location) according to for which communications device of said network the received data packets are intended (“uniquely identified by the combination of the destination MAC address”, [0076]);

a memory for storing said received data packets in different sections according to the storage location defined by said addressing device, wherein the data packets stored

within each of said different sections are respectively timed aligned (Tx/Rx FIFOs of FIG. 5 used to store received data packets of different groups).

Fischer does not explicitly disclose a combiner (encoder) for orthogonally combining the respective time aligned data packets in each of said different sections of said memory and a timer for defining a time period for receiving data packets.

In the same field of endeavor, Dapper discloses an OFDM encoder ("signal processing in modems which use OFDM (orthogonal frequency division multiplexing)", [0015]), and a timer for defining a time period for receiving data packets ("an error timer" for "received signal failure", [0413], in view of FIG. 41-43)

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to apply the teaching of Dapper to the system disclosed by Fischer to achieve the required features.

For **claim 20**, Fischer discloses a packet network where data packets intended for a common communications device are combined (the packet network shown in FIG. 1), comprising:

a non-blocking switch for interconnecting communications devices of said network (one of "non-blocking quarter-DS0s" with "cross-connect capability", [0196]); and

a plurality of communications devices, wherein at least one of said communications devices includes:

an addressing device for defining a storage location for said received data packets (processor 520 of FIG. 5, which decides the address of a storage location)

according to for which communications device of said network the received data packets are intended ("uniquely identified by the combination of the destination MAC address", [0076]);

a memory for storing said received data packets in different sections according to the storage location defined by said addressing device, wherein the data packets stored within each of said different sections are respectively timed aligned (Tx/Rx FIFOs of FIG. 5 used to store the received data packets of different groups).

Fischer does not explicitly disclose a combiner (encoder) for orthogonally combining the respective time aligned data packets in each of said different sections of said memory and a timer for defining a time period for receiving data packets.

In the same field of endeavor, Dapper discloses an OFDM encoder ("signal processing in modems which use OFDM (orthogonal frequency division multiplexing)", [0015]), and a timer for defining a time period for receiving data packets ("an error timer" for "received signal failure", [0413], in view of FIG. 41-43)

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to apply the teaching of Dapper to the system disclosed by Fischer to achieve the required features.

5. **Claim 21** is rejected under 35 U.S.C. 103(a) as being unpatentable over Fischer in view of Dapper, further in view of Zehavi (US 5757767).

As to **claim 21**, Fischer in view of Dapper claim 1, but is silent on said predetermined time period is determined using a **global timing schedule** according to which data packets are transmitted within said communications network and a total time

latency for receiving data packets intended for a communications device of said communications network.

However, using a global timing schedule for a communication system is well known in the art. For example, Zehavi teaches using Universal Coordinated Time which is a global timing schedule to synchronize devices and gateways of the network ("base stations or gateways to synchronize to Universal Coordinated Time (UTC)", col. 8, line 32-44).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to use a global timing schedule for the communications network to ensure the synchronization of all the devices in the network.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jianye Wu whose telephone number is (571)270-1665. The examiner can normally be reached on Monday to Thursday, 8am to 7pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (571)272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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